Haier SERVICE MANUAL

Order No.Ref0906S012V0

Refrigerator

MODEL: HRF-633ISB2R
HRF-633ISB2B
HRF-663ISB2W

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It dose not contain warnings and cautions to advice non technical individuals of potential dangers in attempting to service a product. Product powered by electricity should by serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Haier Group

Contents

Table of Contents ····· 2

1. General Information ····· 4

1-1. General guideline 4

1-2. Insurance test 4

1-3. How to read this Service Manual 5

2. Product Feature ····· 6

2-1. Specifications 6

2-2. Main Functions and Features 8

2-3. External views 9

2-4. Product Dimensions 9

3. Disassembly ····· 10

3-1. Remove the doors 10

3-1-1. Remove the kick moulding 10

3-1-2. Dismantles and install the upper decoration strip and cables 10

3-1-3. Dismantle and install the middle and lower hinge 10

3-2. Adjusting the Doors 11

3-3. Assembling the handles 11

3-4. Disassembling the switch 12

3-5. Removing the Air-Duct 12

3-5-1. Removal of fridge air-duct 12

3-5-2. Removal of freezing air-duct 12

3-6. Disassembling the display panel 13

3-7.Disassembling the Icemaker 14

4. Control and display system ····· 15

4-1. Control and display panel 15

4-2.Function adjustment 15

4-3. Sensor Distribution and Malfunction Codes 19

4-3-1. Sensor location description 19

4-3-2. Graphic display of the sensor location 20

5. Control principle of electronic component ····· 21

5-1. Air Escaper 21

5-2. Control Principle of the Fan motor 21

5-3. Defrost control principle 21

5-4. Ice maker work principle 22

6. System flow principle ····· 23

6-1. Refrigeration flow chart 23

6-2. Perspective of the Refrigeration System 24

6-3. Diagram of icemaker water way 24

7. Circuit diagram ····· 25

7-1. Circuit diagram 25

7-2. Main Control PCB diagram 25

8. Trouble shooting ····· 26

8-1. Common problems and solutions 26

8-1-1. Food in the fridge storage compartment is frozen 26

8-1-2. The buzzer beeps to alarm 26

8-1-3. No defrosting 26

8-1-4. Neither displaying nor starting when powering on 27

8-1-5. Poor freezing effect accompanied by loud noise 27

8-1-6.Common problems with icemaker system 28

8-2. Examination and Solutions for Other Problems 29

8-3. Checking flow chart 30

Chapter 1 General Information

1-1. General Guidelines

When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1) Leakage Current Cold Check
2) Leakage Current Hot Check
3) Prevention of Electro Static Discharge (ESD) to Electrostatic Sensitive

1-2. Insurance test

1. Check if there is any leak of current.
2. Cut out the power supply before the repair to avoid an electrical shock hazard.
3. In the case of a live-line test, insulating gloves should be worn to avoid potential electrical shock.
4. Confirm the rated current, voltage and capacity before testing with any kinds of instruments.
5. Watch if the upper door is open when you check something at a lower position.
6. Take out every part in the cabinet before moving the machine, especially things like panels (e.g. glass shelf).
7. Please wear intact cotton gloves when repair any parts of the evaporator, so that scratches by the sharp fins can be avoided.
8. If there is a breakdown with the refrigeration system, please surrender the machine to the service center, else the leaked refrigerant may pollute the atmosphere.
9. The refrigerator use AC of 220V with a frequency of 50Hz.
10. A big fluctuation of voltage (exceed the range 187～230V) may cause a start failure of the refrigerator, a burn-out of the control panel and compressor, or an abnormal sound from the compressor in operation. In this condition an automatic voltage regulator over 750W should be added.
11. Take care not to damage the supply line. Don’t yank at the line; pull the plug out gently from the receptacle. Don’t press the line under the cabinet or step on it. Take care not to roll on or damage the supply line when moves the machine from the wall.
12. In the case of leakage of inflammable gases like carbon monoxide, open the door and windows. Don’t pull out or insert the plugs of the appliance.
13. Don’t touch the refrigeration surface of the freezing compartment when the refrigerator is in operation, especially when your hand is wet, else you may be glued to the surface.
14. Pull out the plug of power supply during clearance or power outage. Wait at least five minutes to resume the power supply in order to prevent damage to the compressor caused by continuous restart.

Photo used in this manual

The illustration and photos used in this Manual may not base on the final design of products, which may differ from your products in some way.

1-3. How to read this Service Manual

1-3-1. Using Icons

The meaning of each icon is described in the table below:

Note:

A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.

Caution:

A “caution” is used when there is danger, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.

Warning:

A “warning” is used when there is danger of personal injury.

Reference:

A “reference” guides to other places in this binder or in this manual, where we will find additional information on a specific topic.

Chapter 2 Product Feature

2-1. SPECIFICATIONS

	HRF-663ISB2R ***HRF-663ISB2B*** ***HRF-663ISB2W***		
1.	**Model information**		
	Product identification (Refrigerator/Freezer)		Refrigerator
	Description of appliance		Side-by-side
	Family type		American style
	Type of appliance (FS = free standing, BI = built-in)		FS
	Type of cooling system (NF=no frost/ S=static)		NF
	Climate class*		SN/N/ST
2.	**Basic features**		
	Energy efficiency class		A+
	Freezer compartment star rating		*/***
	Gross capacity	l	590
	Total net capacity	l	500L
	Net capacity refrigerator compartment	l	326L
	Net capacity freezer compartment (total)	l	174L
	Net capacity adjustable temperature drawer	l	/
	Freezing capacity / 24 hours	kg/24 h	10kg/24 h
	Energy consumption / year	kWh/year	412.5
	Energy consumption (EN153) per 24 h	kWh/24 h	1.13
	Kind of coolant (R134a/R600a)		R600a 80g
	Approvals (VDE / TÜV / IMQ / NF / ÖVE / DEMKO etc.)		TÜV
	Certifications (CE / ISO 9001/2 / LGA)		GS/CE /EMC
3.	**Key features**		
	Cooling system: (K = Compressor / A = Absorption)		K
	Number of compressor(s)	n°	1
	Defrosting Fridge / Freezer (M=manual A=automatic)		A
	Control system (E = Electronic / M = Mechanical)		E
	Fuzzy logic		Y
4.	**Control panel**		
	External control display		Y

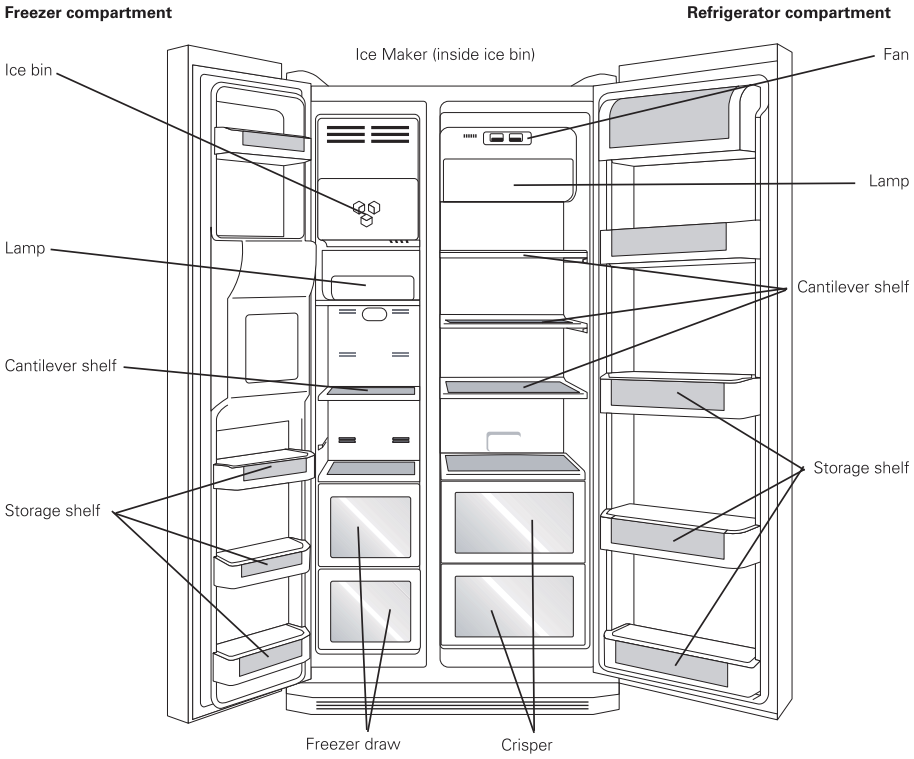
	Fridge room Temperature range (from>to)	°C	3 to 7°C/
	Freezer room Temperature range (from>to)	°C	-15 to -22°C
	Super Cooling (Fridge)		N
	Super Freezing (Freezer)		Y
	Over temperature alarm Red lamp / LCD-LED / Acoustic)		Acoustic
	Control lamps (Green / yellow / red)		Y
5.	**Basics data**		
	Voltage / frequency		220-240 V~/ 50Hz
	Input power / mains fuse (intensity)	W /A	200 / 2.2
6.	**Aesthetics**		
	Door profile (F = flat / R = rounded / S = streamline)		F
	Handle (External/Metal/Integrated)		External
	Available colours		Red/Black/White glass
7.	**Interior description**		
	Fridge compartment:		
	Shelves:		
	Number (Total / adjustable)	n° / n°	3/3
	Type (gr=grill / g=glass / p=plastic)		G
	Colour (w=white / lb=light blue / g=green / t=transparent.)		t
	Bottle holder / bottle(s)	n° / n°	4/4
	Crisper(s):		
	Number / colour t = transparent, w = white	n° / -	2/T
	Shelf (on salad crisper) (g=glass / p=plastic)		1/G
	Door:		
	Storage rack(s) (Total)	n° / n°	5
	Type of rack(s) g=glass / p=plastic		P
	Inside colour (w=white / lb=light blue / t=transparent.)		w
	Freezer compartment:		
	Drawer(s) Number / colour	n°	2/T
	Adjustable temperature drawer	n°	
	Shelf number / p=plastic, g=glass ,W=wire	n° / n°	3 / G
	Door rack(s) number / p=plastic, g=glass		4 / P
8.	**Accessories**		
	Interior light (fridge/freezer)	W	25/25
	Special ice maker (T=Twist, A = Automatic)		A
	Eggs tray(s)		1
	Adjustable feet (front / rear)	n° / n°	2 / 0
	Castors (front / rear)	n° / n°	2 / 2
	Length of cable/incl. plug	cm	200
9.	**Product dimensions**		
	Unit dimensions (*H / W / D)*	**cm**	177*89*73.6
	Depth Without handle	**cm**	**67**

	Depth with open door	**cm**	**1188**
	Door open angle	**n°**	**<135**
	Net weight	**kg**	**145**
10.	**Packing dimensions & load ability**		
	Packing dimensions (*H / W / D*)	cm	189.4*96*77
	Gross weight	kg	155.0
	40 ' Container load	pcs	28
	40 ' HC Container load	pcs	28
11.	**Logistic / recycling information**		
	Packing weight	kg	10.0
	Packing materials / Recycling symbols (RS)	RS	
	Carton	Kg	7
12.	**Service**		
	Users instruction (languages)		Multi-languages

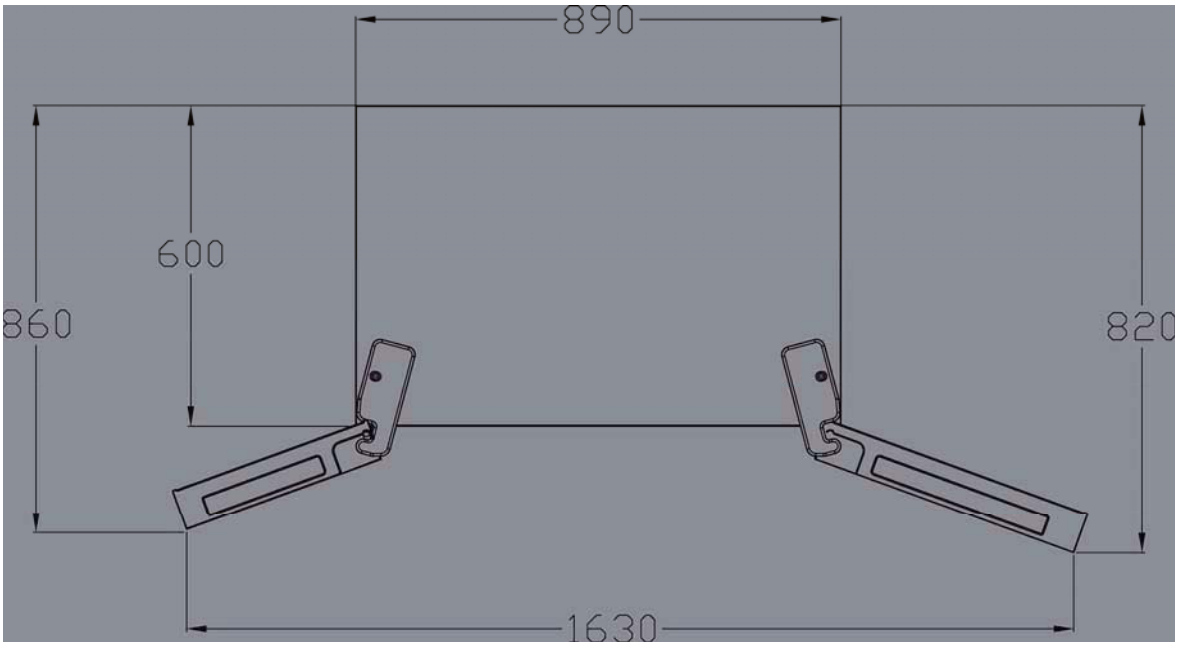
2-2 Main Functions and Features

- ◆ Automatic ice cube maker ,
- ◆ Sliding glass shelves
- ◆ Slim profile with spacious interior
- ◆ The freezer compartment is equipped with a user-friendly frost-free system and manages to freeze foods quickly and evenly
- ◆ Temperature adjustment before defrosting
- ◆ Automatic trouble indicator
- ◆ Buzzer warning when door is open
- ◆ Intelligent mode

2-3. External views



2-4. Product Dimensions



Chapter 3 Disassembly

3-1Remove the doors

⚠Precautions During Dismantling and Installation of The Door

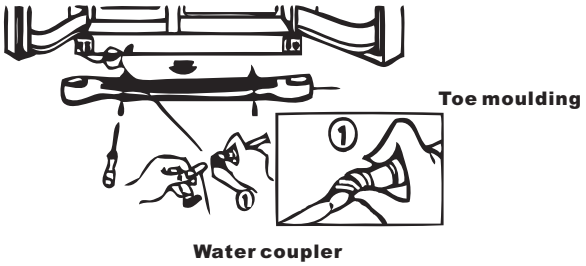
(1) Before removing the doors, please remove food from the shelves and the bottle guards. Then, unplug the refrigerator power cord to avoid personal injury, product damage or property loss.

(2) During dismantling of the door, in order to avoid possible personal injury, product damage or property loss, at least two adults are needed to perform the following operations.

(3) While lifting the hinges to separate it from the door, please take care to prevent the door from falling forward.

3-1-1Remove the kick moulding

Remove the kick moulding,and then release thewater coupler. Slide the kick moulding up to remove it,and then release the water coupler while pressing on area(1) as shown in the illustration.

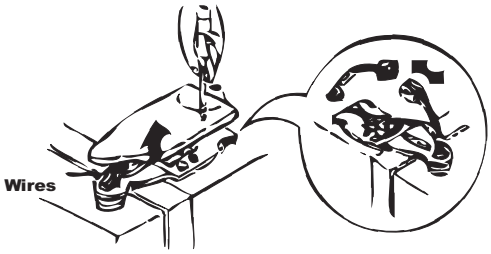


3-1-2 Remove the Freezer door

1)Unscrew the hinge covers. Disconnect all wires except for the grounding wire.

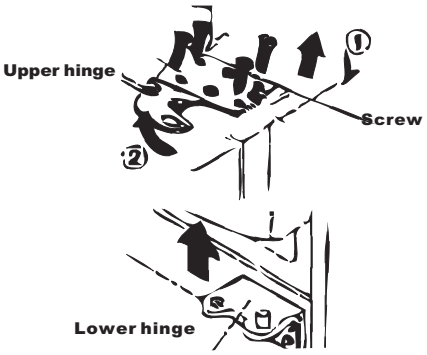
2)Remove the screws from the upper hinge following the direction as indicated by Arrow(1). Then remove the upper hinge following the direction as indicated by Arrow(2).

3)Lift the freezer compartment door to remove it. Next,lift the door enough to be able fully pull out the water line.



3-1-3 Remove the Fridge door

1) Loosen the hinge cover bolts, and then remove the cover. Disconnect any wires except for the grounding wire.
2) Remove the screws from the upper hinge following the direction as indicated by Arrow (1). Then remove the upper hinge following the direction as indicated by Arrow (2).
3) Lift the refrigerator compartment door to remove it.

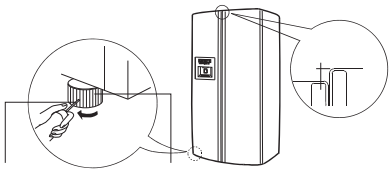


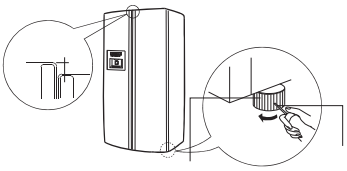
note: Reinstall the doors by reversing the removal steps.

3-2 Adjusting the Doors

If the freezer compartment door is lower than that of the refrigerator compartment, insert the wrench in the groove of the left screw and turn it in the direction of the arrow until both doors are the same height. (see pic1)

If the freezer compartment door is higher than that of the refrigerator compartment, insert the wrench in the groove of the right screw and turn it in the direction of the arrow until both doors are the same height. (see pic2)





3-3 Assembling the handles

1) Put the pothook of handle into the connector (as illustration 1); then pull down the handle hardly while the top of handle and top of door are in the same level (as illustration 2).

2) Put the bolt into the right holes with the help of screwdriver (as illustration 3).

3) When you are disassembling the door handle, please operate as the opposite way of assembling.

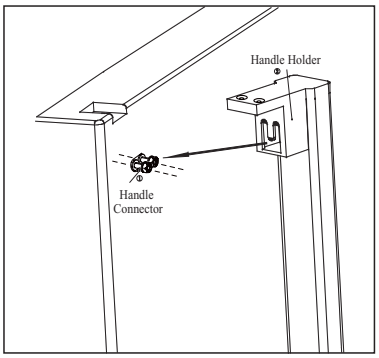


illustration 1

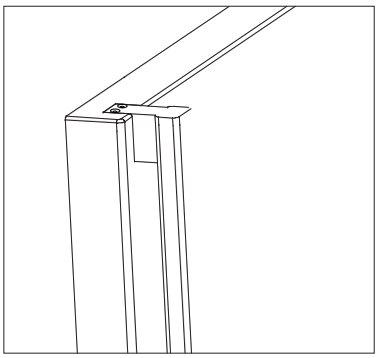


illustration 2

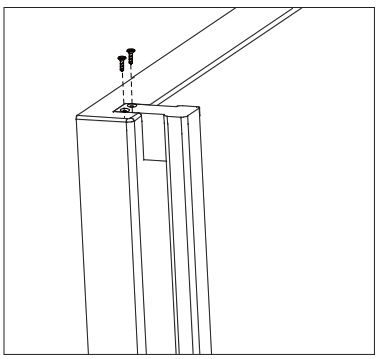
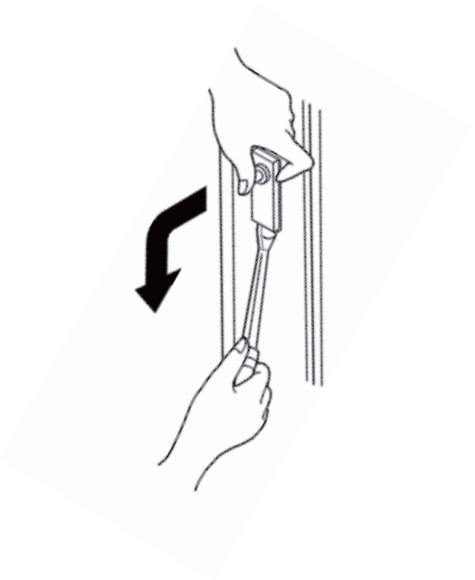


illustration 3

3-4 Disassembling the switch



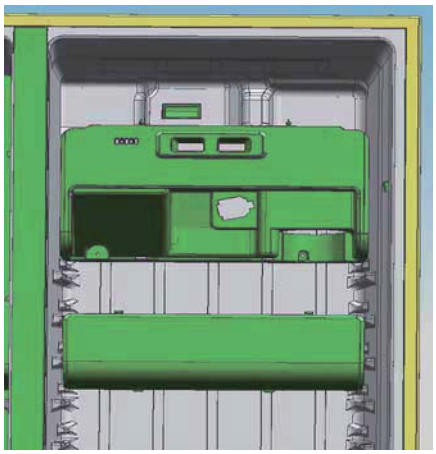
1. To remove the switch pulls out it with a "_"type screwdriver as shown in.
2. Disconnect the lead wire from switch.

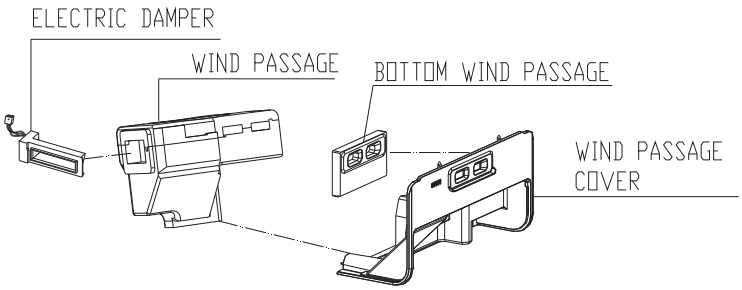
3-5 Removing the Air-Duct

Unplug the refrigerator before removing the air-duct

3-5-1 Air-Duct assmebly in fridge

1. Unplug the power cord from the outlet;
2. Remove the fridge shelf;
3. Remove the lamp cover ;
4. The bulb can be replaced;
5. Loosening 2 screws fixed to ceiling of inner liner;
6. Pull out the electric damper, wind passage and the wind passage cover;
7. After replaced the disabled parts, assemble in reverse order of disassembly.

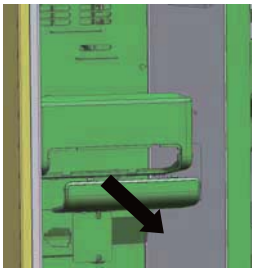
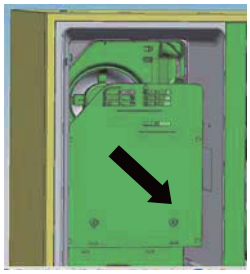
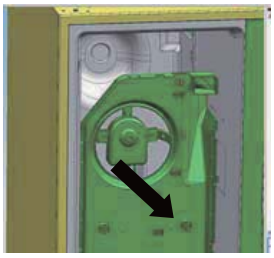
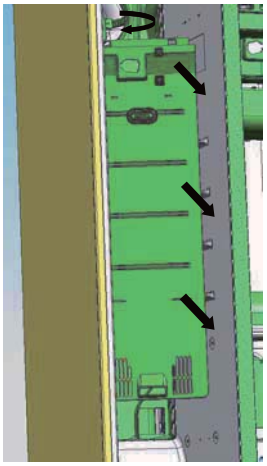


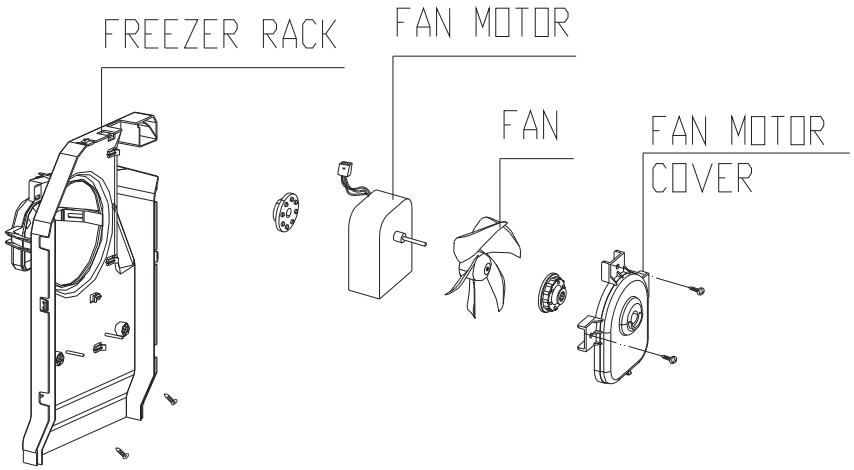


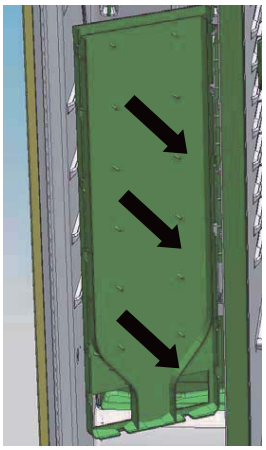
3-5-2 Air-Duct assmebly in Freezer

1. Unplug the power cord from the outlet;
2. Remove the freezer shelf;
3. Remove the lamp cover;
4. The bulb can be replaced;
5. Loosening 2 screws fixed the cover and pull out the top freezer air tower;
6. Pull out the bottom freezer air tower and unplug the sensor cable;
7. Pull out the freezer rack, unplug the fan motor cable and separate the fan motor, fan motor cover and the rack;

8. Pull out the freezer air shutter;
9. Unplug the defrost sensor cable and replace it;
10. Assemble in reverse order of disassembly.

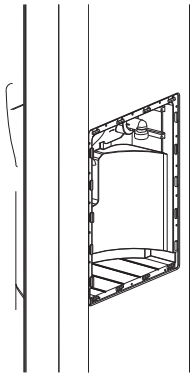





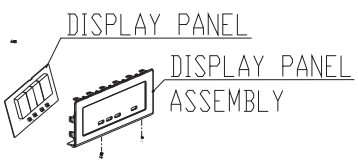




3-6 Disassembling the display panel

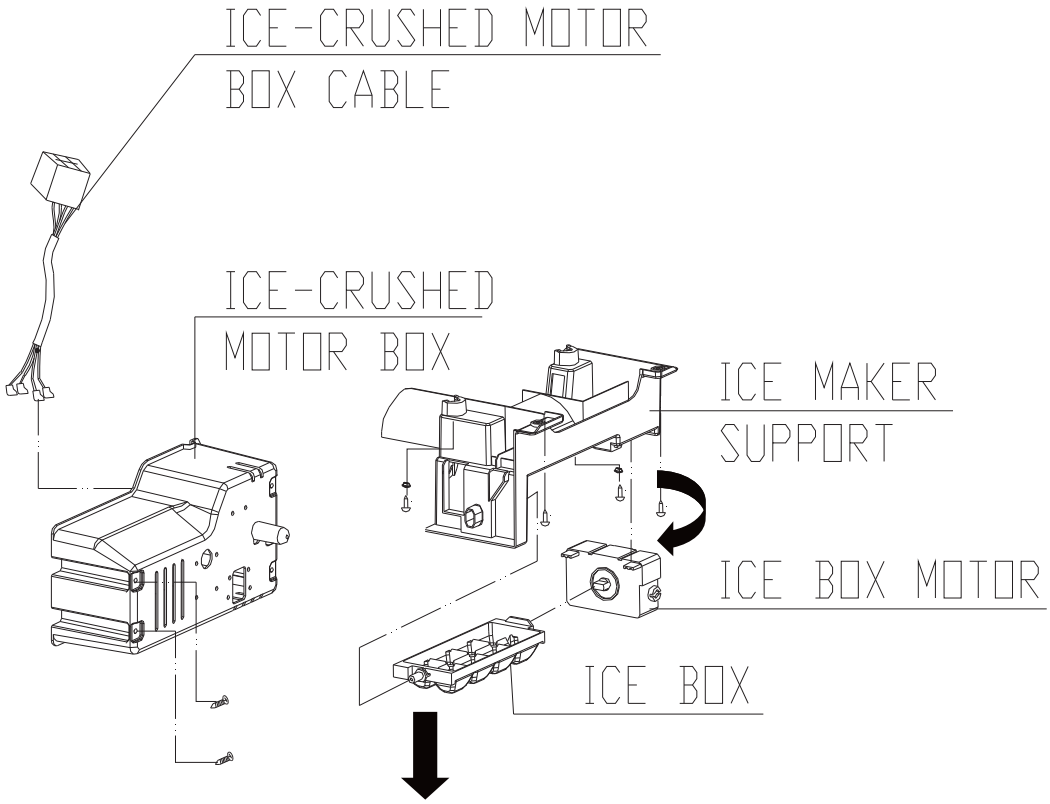
1. Unplug the power cord from the outlet;
2. Loosening 2 screws fixed the bottom of control panel assembly;
3. Unplug the display panel;
4. Loosening 4 screws fixed the control panel.





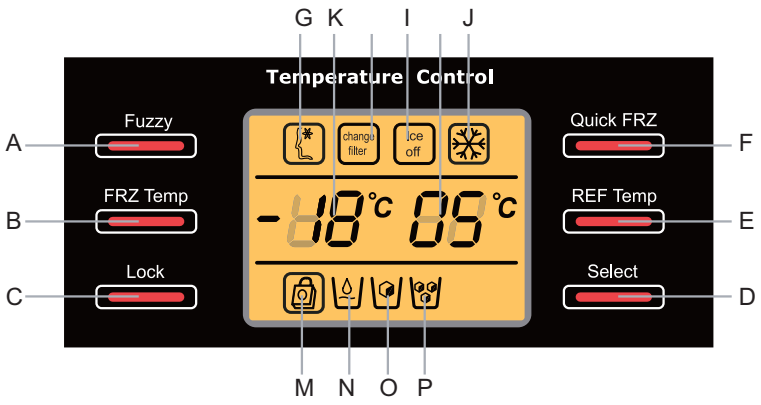
3-7 Disassembling the Icemaker

1. Unplug the power cord from the outlet;
2. Pull out the ice-crushed box assembly and loosening the screws from the ice-crushed box slide way; 3. Pull out the ice-crushed box slide way;
4. Take out the ice box and then take out the ice box motor;
5. Loosening 4 screws from the ice maker support and put it out;
6. Loosening 2 screws from the ice-crushed motor box and put it out;
7. Disconnected the ice-crushed motor box cable.



Chapter 4 Control and display system

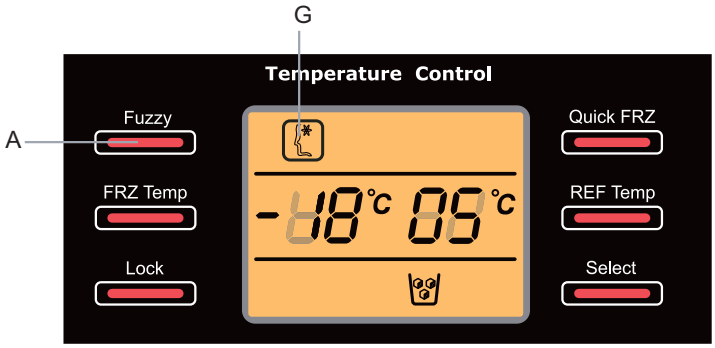
4-1. Control and display panel



A---Fuzzy logic
B---Freezer temperature
C---Lock function
D---Ice/Water
E--- Refrigerator temperature
F----Quick freeze
G----Fuzzy logic indicator
H----Water filter indicator
I-----Ice maker indicator
J----- Quick freeze indicator
K----- Freezer temperature indicator
L------ Refrigerator temperature indicator
M-----Lock function indicator
N-----Water selected indicator
O-----Cubed ice selected indicator
P-----Crushed ice selected indicator

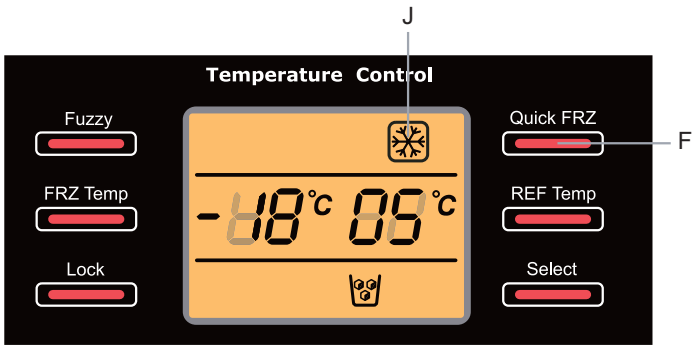
4-2. Function adjustment

■ **Fuzzy logic function**



If fuzzy logic is activated, the appliance will adjust inside temperature automatically according to ambient temperature. Fuzzy logic is activated and inactivated by consecutive press of button A, then Fuzzy logic indicator G will turned on and off.

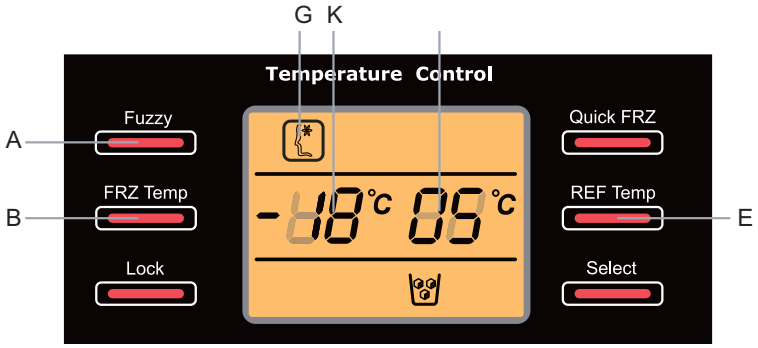
■ Quick Freeze



Quick freeze function is designed to preserve the nutritional value of food as the food will freeze completely in the shortest period possible. To use the 'Quick Freeze' function, press button F. Indicator J will illuminate to show you that the function is operational, and this function will switch off automatically in 3 hours later. To switch 'Quick Freeze' off under the 'Quick Freeze' condition, press button F again – indicator J will go out.

Note: the Quick freeze cannot be activated if the fuzzy logic is set.

■ Setting and Adjusting the Temperature



The appliance is preset at fuzzy logic, which can be inactivated by a press of Fuzzy logic button A, indicator G will go out.

Setting and adjusting temperature as follows: (Fuzzy logic must be inactivated.)

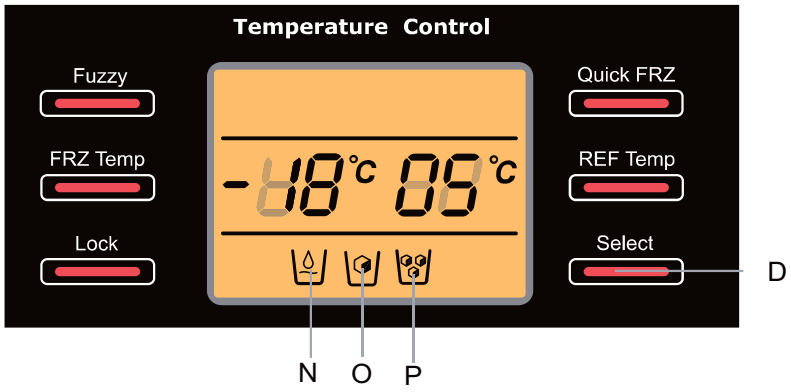
To adjust the refrigerator temperature under unlocked condition, press button E, the indicator L will flash. Each subsequent press of button E will adjust the temperature circled as follows:

5℃-4℃-3℃-7℃-6℃-5℃.

To adjust the freezer temperature under unlocked condition, press button B, the indicator K will flash. Each subsequent press of button B will adjust the temperature circled as follows:

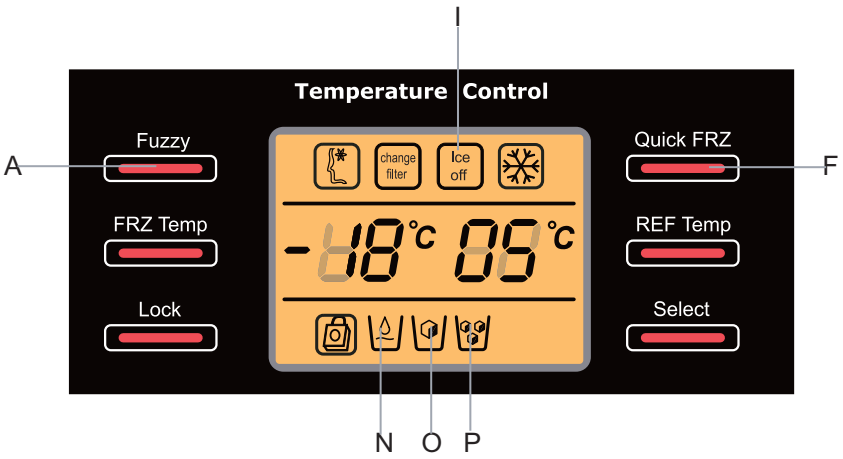
-18℃ —— -20℃—— -22℃ —— -15℃ —— -17℃ —— -18℃.

■ Ice cube/water select



The appliance is pre-set at crushed ice condition when the power supply is connected, indicator P illuminates. Press the button D to choose the option you want.

■ Switching the icemaker on/off



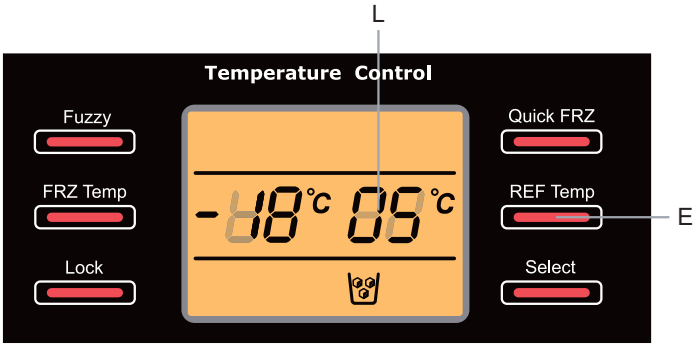
To close the ice maker, press and hold the button F and A for 3 seconds, indicator I and N comes on, it is indicating that the ice maker has been turned off, this will shut off the water supply to the ice maker, no cubed and crushed ice, Ice/Water button cannot be used for selecting between water, cubed ice and crushed ice, but it will not affect the water dispenser, cool water is still available.

If you want to turn on the ice maker, press and hold the button F and A for 3 seconds, indicator I turns off, ice maker restart to run as usual.

Note: 1) if indicator N, O and P cannot be selected, please confirm if the ice maker has been turned off according to the above information.

2) the ice maker turns on when you re-connect the electricity supply.

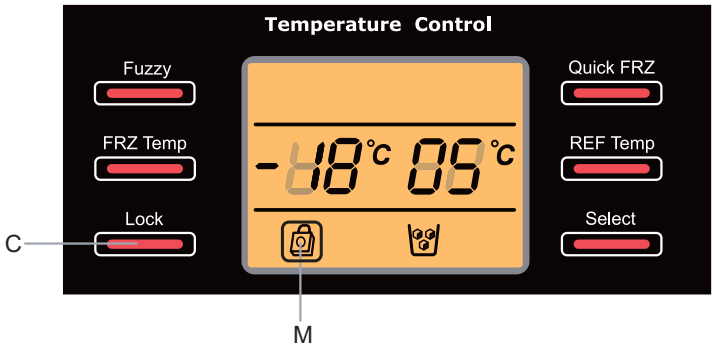
■ Switching the refrigerator On/Off



To switch off the refrigerator, press and hold button E for 3 seconds, indicator L will disappear, but the light will continue to illuminate.

To switch the refrigerator on again, press and hold button E, indicator L will reappear and the refrigerator will begin to run as usual.

■ Locking and Unlocking the appliance

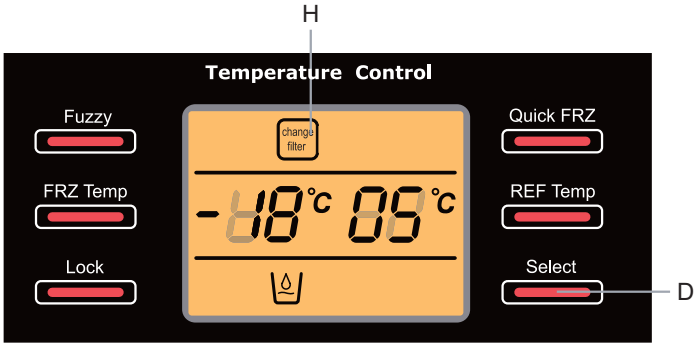


To lock the appliance, press and hold button C for 3 seconds under the unlock condition, indicator M will light;

To unlock the appliance, press and hold button C for 3 seconds, indicator M will go out.

Note: Above functions can be used when the appliance has been locked.

■ Changing the water filter



When the water filter indicator light H comes on, it is indicating that the water filter requires changing (approximately every 6 months). After finishing the change, press and hold button D for 3 seconds, indicator light H will disappear.

■ **Error Codes**

In the event of an error occurring, the Freezer temperature indicator K and Refrigerator temperature indicator L will show one of the following codes: E0, E1, E2, F1, F2, and F3.

The meanings of those error codes please find in chapter 4-3

■ **Open door warning**

If any door and home bar is left for more than 30 seconds the Door Alarm function will start to remind you to close the door.

■ **Control Function Display**

30 seconds after the final press of any button, the display will be blank. The display will illuminate when the door is opened, or if you press any button.

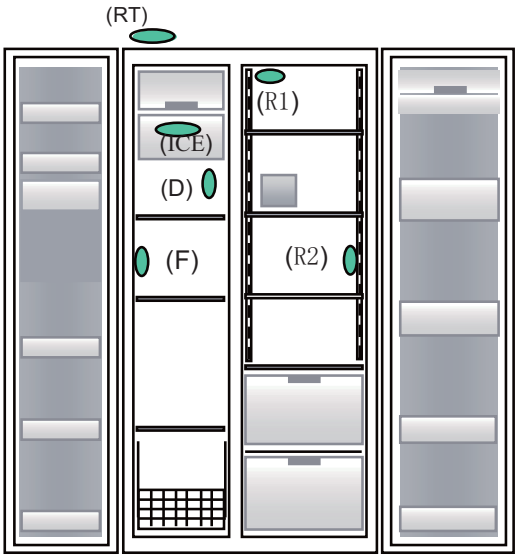
■ **Power-breaking Memorizing Function**

When the refrigerator turns off as a result of a power surge, the state of the refrigerator before the power break is memorized. Once restarted, this allows the refrigerator to operate with the programmed default values as before the power break.

Note: this function is not suit for switching ice maker off and locking the refrigerator.

4-3 Sensor Distribution and Malfunction Codes

4-3-1 Graphic display of the sensor location



4-3-2 Error code display

NO	Item	Error Code	Meanings of Code
1	Normal	Display	No
2	Refrigerator R1 sensor malfunction	F1	R1 SNR short circuit or open circuit
3	Refrigerator R2 sensor malfunction	F2	R1 SNR short circuit or open circuit
4	Ambient temperature Sensor malfunction	F3	RT SNR short circuit or open circuit
5	Freezer sensor malfunction	F4	F SNR short circuit or open circuit
6	Defrost sensor malfunction	F6	D SNR short circuit or open circuit
7	Icemaker sensor malfunction	F7	ICE SNR short circuit or open circuit
8	Signal transmit component	E0	No reflect when setting ,between display PCB and Power PCB no signal transmitted over 2 min
9	Freezer fan motor malfunction	E1	No single send out more than 30 seconds
10	Cooling fan motor malfunction	E2	No single send out more than 30 seconds
11	Defrost Heating System error	Ed	Defrost sensor temperature can’t reach to 7 centigrade after temperature rise more than 2 hours

Chapter 5 Control principle of electronic component

5-1. **Air Escaper**

(1) The refrigeration air escaper is controlled with the fridge storage temperature sensor R SNR.

(2) The air escaper is closed from the beginning of defrosting until 15 minutes after the defrosting is finished.

(3) Upon initial powering on or resetting of the control panel, the air escaper conducts a close-and-open cycle before acting according to the control conditions in item (1).

(4) The air escaper will be forced to conduct an open-and-close cycle if it has been closed for 1 hour. After that, its closing/opening will be controlled by R SNR.

(5) The air escaper will automaticlly close when fridge door have been opend over 2 minutes.

5-2. **Control Principle of the Fan**

The freezer fan is controlled by the control panel according to the following conditions. The DC fan's rotation speed is regulated with PWM mode and the AC fan operates directly.

(1) Upon initial powering on,the freezer fan motor will running before the air escaper in fridge first close.

(2) When the fridge storage compartment door is opened, the freezer fan will run and the refrigeration air door will open. After 2 minutes, the refrigeration air door will close;

(3) When the freezer storage compartment door is open, the freezer fan will stop running;

(4) Conditions for judging LOCK of the freezer fan: If the rotation speed of the fan is less than 300RPM or the fan does not run and the state has persisted for over 30 seconds, a freezer fan malfunction will be displayed. Normal display will be recovered after it becomes normal. Otherwise the freezer fan malfunction will persist.

5-3. **Defrosting Control Principle**

(1) A defrosting cycle will be started once the compressor has been operated for 8 hours accumulatively. It will stop defrosting when the defrosting sensor detects a temperature over 7ºC.

(2) The compressor stops and the refrigeration air door is closed during defrosting.

(3) After initial powering on or resetting of the control panel, it will start the first defrosting cycle after the compressor has operated for 4 hours accumulatively. If the super freezer function is used, defrosting will be start after 7 hours compressor running.

(4) It may enter the defrosting state when the defrosting sensor is malfunctiony (short-circuit or open-circuit). In this case, it will exit the defrosting state after 30 minutes.

5-4. Icemaker working principle

(1) Once the appliance powered on, and the temperature of ice maker sensor drop to -12℃, the ice maker will initialize automatically then begin to pour water in.

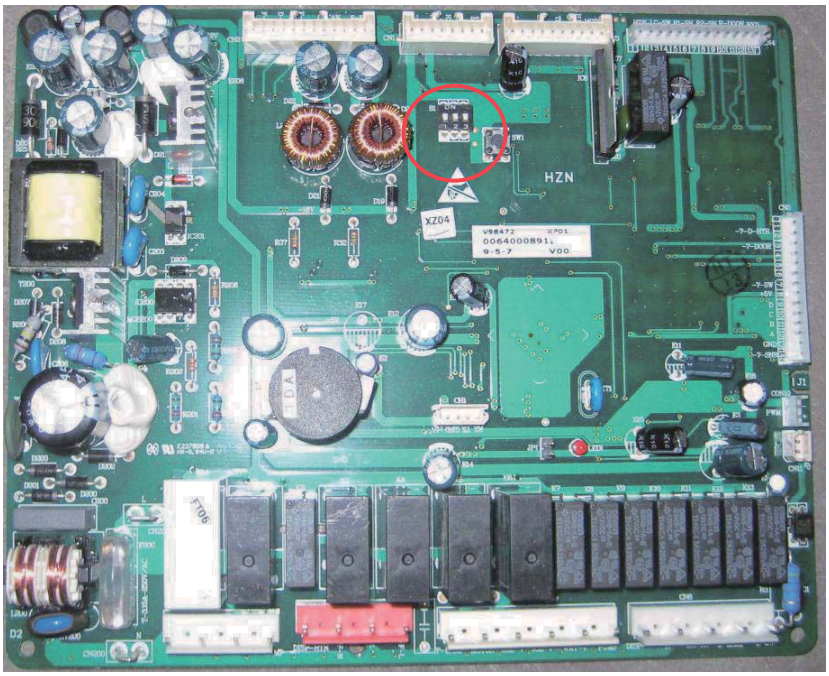
(2) After water have poured in one hour, the motor will rotate to start ice pushing in 2 minutes when the temperature of ice maker sensor drop to -12℃;If the temperature is higher than -12℃, the motor will keep waiting to push the ice cube until temperature drop to -12℃.

(3) The motor will wait 1 hour to push ice when detect the ice store box is full.

(4) The ice maker will rotate every 100 minutes if the ice make sensor is error

(5) After every ice-pushing, the motor will adjust ice box horizontally, then the water valve which is controlled by relay on main control PCB will start to pour water in.

(6) Water inlet quantity can be controlled through ***DIP S/W Control*** buttons on the main control PCB on any power on/off condition. If the adjustment is under the water inlet condition, the water valve will execute the time before adjustment, new inlet time will be executed next time.



No	DIP S/W Control			Water inlet time	Remark
	S1	S2	S3		
1	OFF	OFF	OFF	6.0 seconds	Adjust the water inlet time according to the different water pressure. The water inlet quantity is 80-120cc/second。
2	ON	OFF	OFF	3.5 seconds	
3	OFF	ON	OFF	4.0 seconds	
4	ON	ON	OFF	5.0 seconds	
5	OFF	OFF	ON	5.5 seconds	
6	ON	OFF	ON	6.0 seconds	
7	OFF	ON	ON	7.0 seconds	
8	ON	ON	ON	8.0 seconds	

(7) If cool water valve and ice maker valve both need to inlet water, water will be supplied to cool water

valve first and next comes to ice maker, if cool water valve needs water when ice maker valve is inlet water, both two valve will be supplied water at the same time.

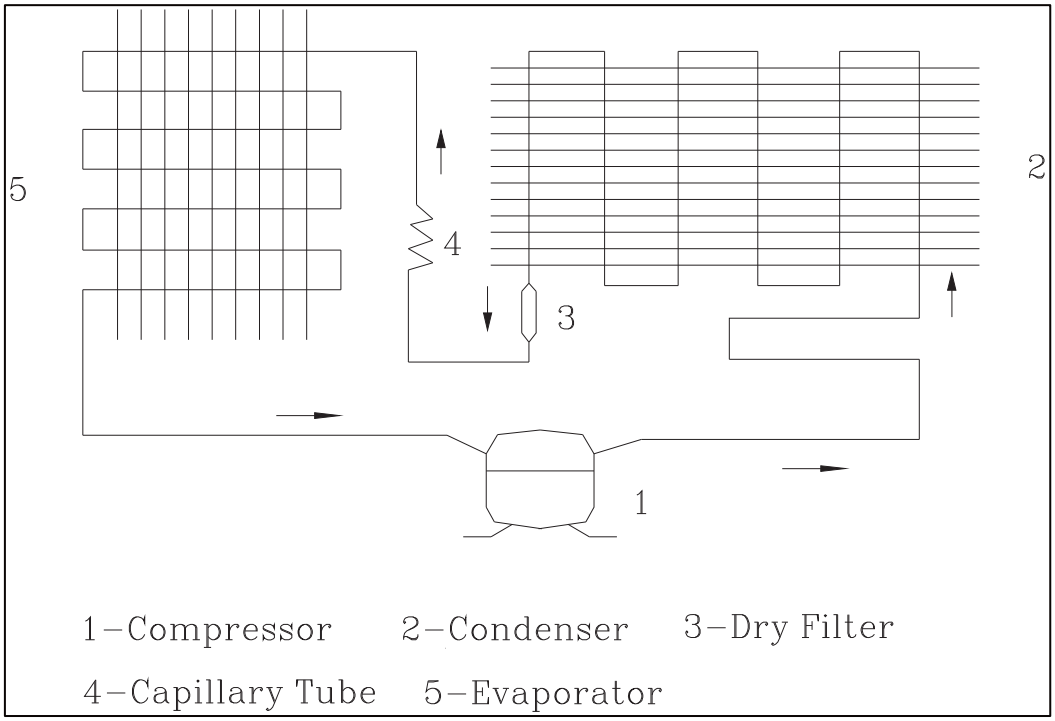
Chapter 6 System flow principle

6-1. Refrigeration flow chart

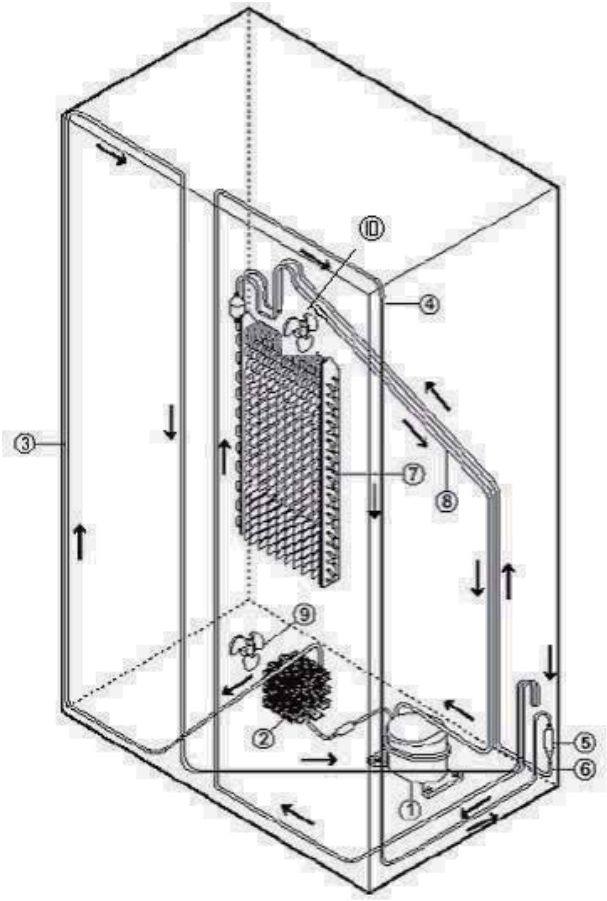
Principle diagram and description of the refrigeration cycle

The refrigerant is compressed in the compressor, from there, it enters the dry filter, de-dewing tube, and the condenser, and goes into the evaporator after being throttled and decompressed in the capillary tube. Finally, it returns to the compressor through the air return tube.

Principle diagram of the refrigeration cycle:

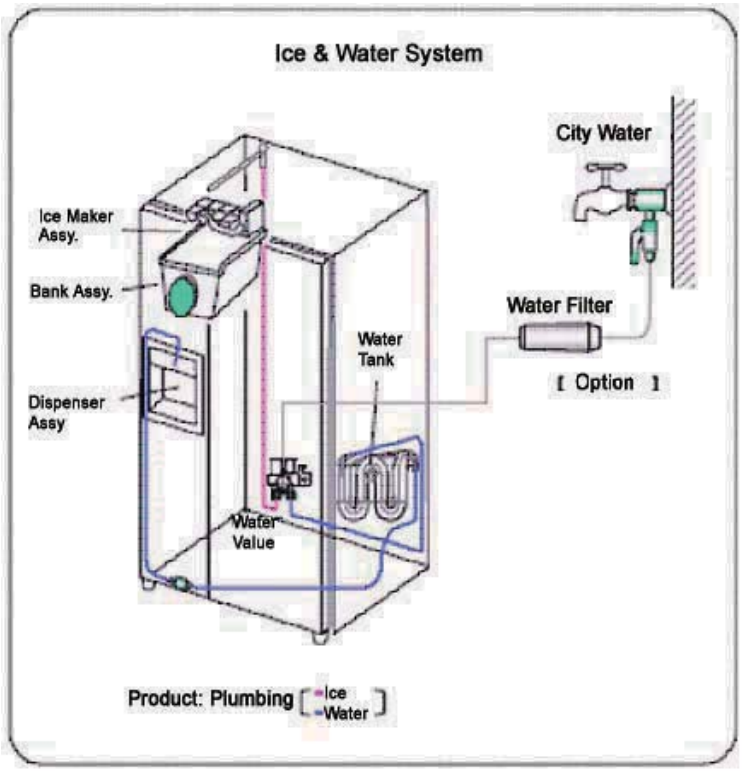


6-2. Perspective of the Refrigeration System



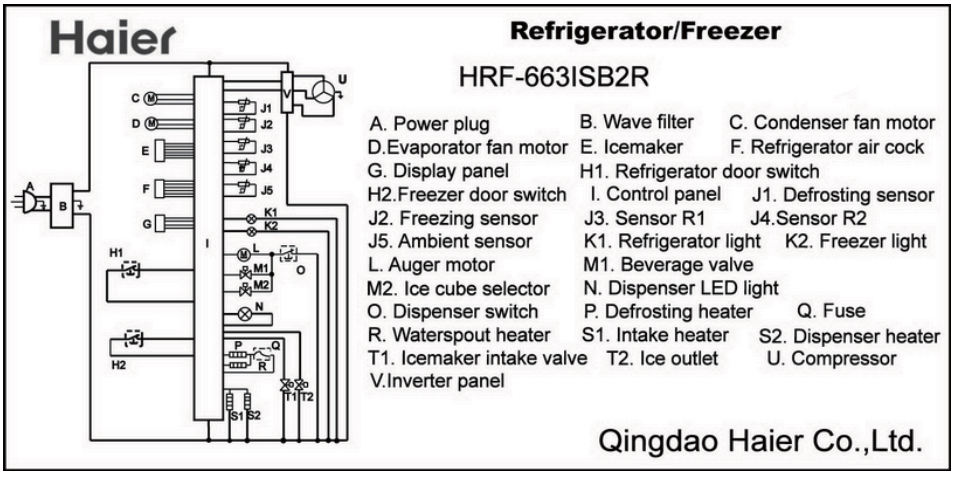
① Compressor
② Condenser
③ Hot connector pipe for freezer
④ Hot connector pipe for fridge
⑤ Drier filter
⑥ Capillary tube
⑦ Evaporator
⑧ Suction pipe
⑨ Compressor DC fan motor
⑩ Freezer DC fan motor

6-3 Diagram of icemaker and dispenser waterway

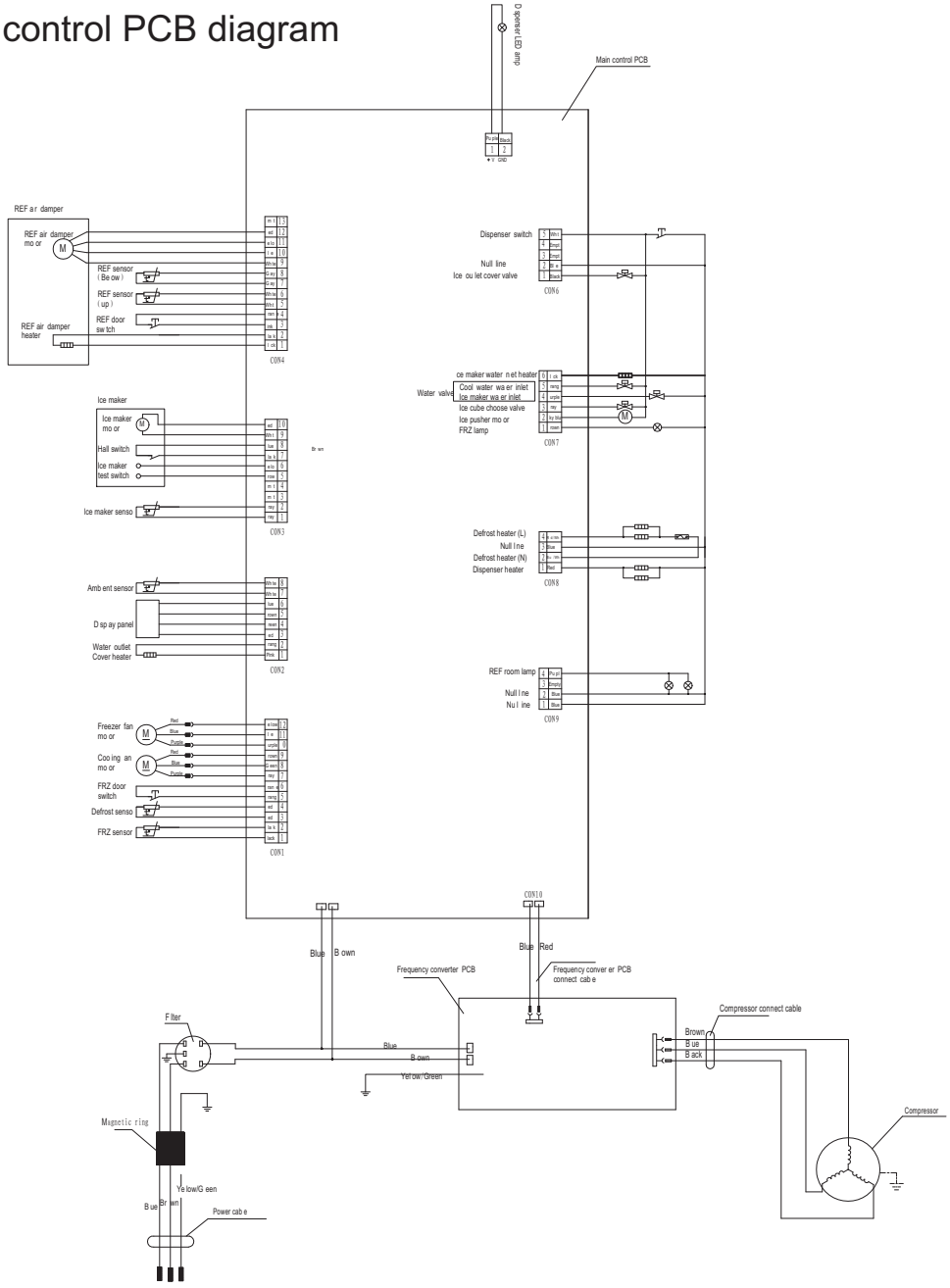


Chapter 7 Circuit diagram

7-1.Circuit diagram



7-2. Main control PCB diagram



Chapter 8 Trouble shooting

8-1. Common problems and solutions

8-1-1 Symptom: food in the fridge storage compartment is frozen

Check:

1) Verify that the temperature in the fridge storage compartment is too low and the food is frozen there;
2) Remove the decoration piece of the refrigeration air-duct. Detach the 2 screws and take out the air door-foam assembly. Press the “Refrigeration OFF” button to see if the air door closes automatically. If the air door closes tightly, continue to next step. If the air door does not close normally, continue to step 6).
3) Disconnect the connection wires of the air door and the LED lamps. Take out the air door-foam assembly. Tear the adhesive tape wrapped around the foam and separate the foam. Check if the seal between the air door and the foam is tight.
4) If the seal is tight, check if the fridge storage temperature sensor R1 is OK.
5)If the sensor R1 is OK, then the main control panel is probably malfunctioning.
6) If the wiring of the air door is OK, check the circuit from the connector of the main control panel to the connector in the cabinet. If there is no problem in this circuit, the air door is malfunctioning.

Solutions:

1) If the seal between the air door and the foam is found to be not tight, please affix seal strip on the interface between the air door and the foam;
2) If the sensor R1 is malfunctioning, please replace it with a new one;
3) If the main control panel is malfunctioning, please replace it with a new one;
4) If the connector of the air door is connected with reverse polarity, please reconnect it correctly;
5) If the air door is malfunctioning, please replace it with a new one.

8-1-2 Symptom: the buzzer beeps to alarm

1) Test across pin 4 and pin 3 of CN1 on the main control panel. The 2 pins should be switched to conduction when the door is closed and disconnected when the door is open.
2) If pin 4 and pin 3 of CN1 are disconnected in both cases, please remove the front decoration strip to see if the door switch is still in the slot.

8-1-3 Symptom: no defrosting

Check:

1) Activate the forced defrosting function by double pressing the button on the main control panel. Then, check if the temperature of the defrosting heating wire is rising.

   If the temperature of the heating wire does not change, remove the fan cover plate to check if all the connectors are connected properly and test if there is 220V voltage output across the terminals of the heating wire.

2) Measure the resistance of the heating wire with a multimeter. It should be around 345Ω.

3) Measure the resistance of the defrosting fuse. If it is zero, the fuse is OK. If it is infinite, the fuse is malfunctioning.

4) If no malfunction is found in the above checks, please test the defrosting temperature sensor with a multimeter.

8-1-4 Symptom: neither displaying nor starting when powering on

Check:

1) Check if the power supply is connected properly.

2) Remove the main control panel and examine its back side carefully to see if there are solder skips or open soldering;

3) Check if the connector of the freezer door hinge is connected properly.

4) Verify the display panel to see if the refrigerator is in OFF state. If so, press and hold the button on the power board for 3s to turn it on.

Solutions:

1) If there is dry soldering or open soldering on the control panel, resolder it with an electrical iron.

2) If any connector is not connected properly, replug it firmly.

3) Press and hold the button on the power board for 3s to turn the refrigerator on.

8-1-5 Symptom: poor freezing effect accompanied by loud noise

Check:

1) Check if there is apparent abnormal sound in the freezer storage compartment. Remove the fan cover plate, close the refrigeration air door (and the icemaker air door), and check if the freezer fan is operating normally. (The fan does not operate when the refrigeration air door is open. Please first eliminate the possibility of improper installation of the door on-off)

2) If the freezer fan does not run, remove it and check if its connector and the cabinet connector are connected properly. Test if there is approximately 12VDC voltage across pin2 and pin 3 of CN4. If there is no 12VDC voltage, the main control panel can generally be determined to be malfunctioning. If there is 12VDC voltage, the freezer fan can generally be determined to be malfunctioning.

3) If the fan rotates abnormally, the fan is malfunctioning.

Solutions:

(1)If there is apparent abnormal sound in the freezer storage compartment, check if the fan base is firmly fixed, if the fan vanes are installed properly, and if they intervene with the wires. If any of these problems is found, please remove the fan and reinstall it properly.

(2)If the fan connector is not installed properly, disconnect the terminals and reinstall the connector。

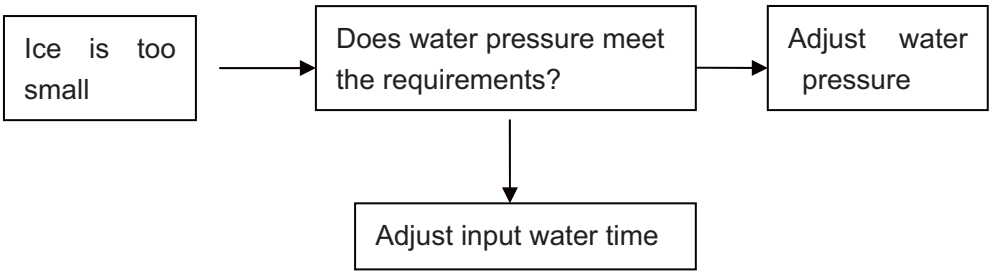
(3)If the main control panel or the fan is malfunctioning, replace the malfunctioning one with a good spare part.

8-1-6 Common problems with icemaker system

1. Water inflow adjustment

Adjust set button. When inputting water time is flashing (input water time is only available when icemaker is open), press OK button for time adjustment. Just press up and down button to adjust the time. If ∅8mm, time adjustable range circles between 2 to 7 seconds and every adjustment shall be 0.5s increasing or decreasing. When water pressure is between 1.5-7.5bar, input water time can be adjusted to 4s or 4.5s, while input water volume is about 80g and default input water time is 4s.

2. Ice is too small



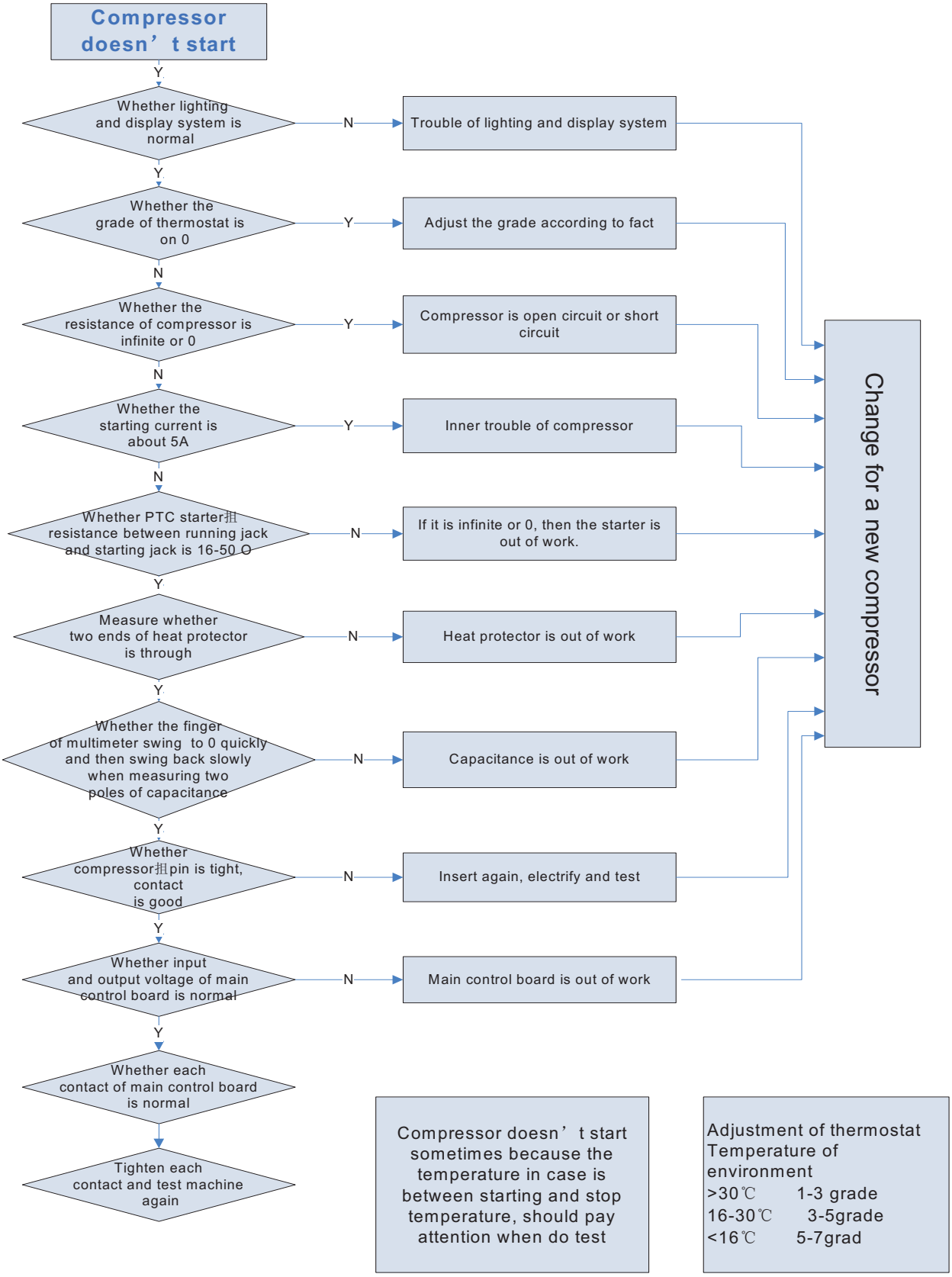
1. Water leakage of freezer storage compartment
   a) Check whether input water time of the icemaker is too long, as 4s or 4.5s input water time has a water flow at a volume of 80g. If time is too long will cause ice box to store too much water.
   b) Ice in ice box is frozen, can't be removed. Just clean the ice box.
   c) Check whether ice box is installed in icemaker, if not, just install the ice box.
2. Icemaker doesn't make ice
   a) Check whether icemaker function is available or not, if not, activate the function via display panel.
   b) Check whether pipes connected to water tap are open or not open, if not, open the pipes.
   c) Check whether water valve is frozen (check by icemaker waterway testing function), if yes, just defrost the water valve.
   d) Check whether ice detection level is stuck, if yes, just make the level unstuck.
   e) Check whether door of the icemaker is open or not closed tightly; close the door well.
   f) Check whether the temperature in freezer storage compartment is available for ice making (suitable temperature is below -12℃).

8-2 Examination and Solutions for Other Problems

Problems	Causes	Solutions
Water/moisture/frost in the refrigerator		
Moisture accumulates on the refrigerators inner walls	● Hot and moist climate. ● The door is not closed tightly ● The door is opened too frequently or for too long time	● Accumulation of frost and moisture accelerate in such climate. ● Make sure the refrigerator is level and there is no food or container interfering with the door ● Do not open the door so frequently
Water/moisture/frost on outside surface of the refrigerator		
Moisture accumulates on the refrigerator's outside surface or between two doors	● Damp climate ● The refrigerator door is not closed tightly. This causes mixing of the cold air in the refrigerator with the warm air outside it	● It is normal in damp climate. The moisture will decrease when the humidity drops. ● Make sure the refrigerator is level and there is no food or container interfering with the door
Refrigerator operation		
The compressor does not work	● The refrigerator is in defrosting cycle. ● The refrigerator is not plugged into a power outlet. ● The refrigerator is in OFF state.	● It is normal for an automatic defrosting refrigerator. ● Verify the plug is plugged in the socket firmly. ● Press the "Power" button for 3 second or more to restart the refrigerator or turn the knob from OFF to temperature selection position.
The fridge storage compartment does not work	● The air door cable is not connected properly. ● The fan does not work ● The fridge storage compartment is turned off	● Check if the air door cable is not connected properly and install it correctly if not so. Verify that the air door acts normally with the Fridge ON/OFF key on the display panel ● The fan does not work while the refrigeration air door is open. Please check if the door on-off behind the front decoration strip is installed properly. Reinstall it correctly if not so. ● Turn on the fridge storage compartment manually
The refrigerator runs frequently or runs for too long period	● The indoor or outdoor temperature is high ● The refrigerator has been powered off for a period of time. ● The automatic icemaker is operating. ● The door is opened too frequently or for long periods. ● The door of the fridge / freezer storage compartment is not tightly closed. ● The temperature setting for the freezer storage compartment is too low ● The door gasket of the	● In this case, it is normal for the refrigerator to run longer. ● Normally, it takes 8 to 12 hours for the refrigerator to totally cool down. ● Icemaking process makes the refrigerator to run longer. ● Warm air enters the refrigerator and causes it to start frequently. Please do not open the door so frequently. ● Make sure the refrigerator is level place and there is no food or container interfering with the door. ● Set the temperature higher until satisfactory refrigerator temperature is obtained. It takes 24 hours for the refrigerator temperature to become stable. ● Clean or replace the door gasket. Leakage gap of door gasket can cause longer

	fridge/freezer storage compartment is dirty, worn, cracked or mismatched. ● The condenser is dirty.	running time of the refrigerator in order to maintain desired temperature. ● Clean the condenser.
Too high temperature		
Too high temperature in the fridge/freezer storage compartment	● The door is opened too frequently or for too long periods of time ● Temperature is set too high ● The door is not closed tightly ● The condenser is dirty	● Warm air will enter the refrigerator whenever the door is opened. Try to open the door as infrequently as possible. ● Reset the temperature. ● Make sure the refrigerator is on a level surface and there is no food or container interfering with the door. ● Clean the condenser.
The temperature in the freezer storage compartment is too high while the temperature in the fridge storage compartment is OK	● The temperature is set too high	● Set the freezer temperature lower. It takes 24 hours for the temperature of the refrigerator to become stable.
The temperature in the fridge storage compartment is too high while the temperature in the freezer storage compartment is OK	● The temperature is set too high	● Set the fridge temperature lower. It takes 24 hours for the temperature of the refrigerator to become stable.
Bad odors in the refrigerator		
The inside of the refrigerator is dirty	● The inside of the refrigerator needs cleaning ● Food with strong odor is stored in the refrigerator	● Clean the internal of the refrigerator ● Wrap the food tightly.
If you hear...		
Beeps	● The fridge storage compartment door is open ● The temperature in the freezer storage compartment is too high	● Close the door or silence the alarm manually ● The alarm is normal when it is first started due to relatively higher temperature.
Abnormal sound	● The refrigerator is not located on a level surface ● The refrigerator touches some object around it	● Adjust the feet to level the refrigerator. ● Remove objects around it.
Slight sound similar to that of flowing water	● It is the sound of the refrigerating system	● Normal.
Heating of cabinet	● The de-dew tube is de-dewing	● It is a process to prevent dewing. It is a normal phenomenon.

8-3. Checking flow chart


Compressor doesn’ t start
Whether lighting and display system is normal
N
Trouble of lighting and display system
Y
Whether the grade of thermostat is on 0
Y
Adjust the grade according to fact
N
Whether the resistance of compressor is infinite or 0
Y
Compressor is open circuit or short circuit
N
Whether the starting current is about 5A
Y
Inner trouble of compressor
N
Whether PTC starter扭 resistance between running jack and starting jack is 16-50 O
N
If it is infinite or 0, then the starter is out of work.
Y
Measure whether two ends of heat protector is through
N
Heat protector is out of work
Y
Whether the finger of multimeter swing to 0 quickly and then swing back slowly when measuring two poles of capacitance
N
Capacitance is out of work
Y
Whether compressor扭 pin is tight, contact is good
N
Insert again, electrify and test
Y
Whether input and output voltage of main control board is normal
N
Main control board is out of work
Y
Whether each contact of main control board is normal
Tighten each contact and test machine again
Change for a new compressor

Compressor doesn’ t start sometimes because the temperature in case is between starting and stop temperature, should pay attention when do test

Adjustment of thermostat
Temperature of environment
>30℃ 1-3 grade
16-30℃ 3-5grade
<16℃ 5-7grad

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Haier Industrial Park, No.1, Haier Road

266101, Qingdao, China

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